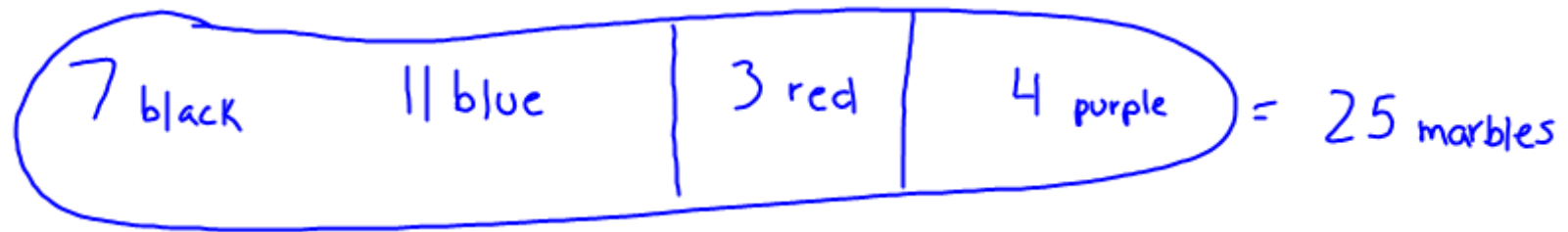


1. In a bag there are 25 marbles. 7 are black, 11 are blue, 3 are red, and 4 are purple. What is the probability that you will pick a red marble?

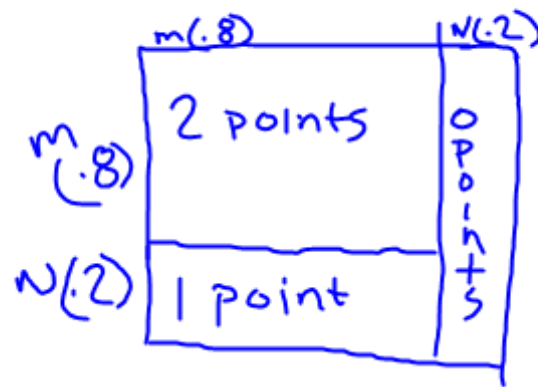


3 out of 25 marbles are red.

$$\frac{3}{25}$$

2. Sammy has a free throw success rate of 80%.

- Construct an area model for the one-and-one situation with Sammy.
- Using your area model, what is the probability that Sammy will get 0, 1, or 2 points



$$0 \text{ points} - .2 \times 1 = .20$$

$$1 \text{ point} - .8 \times .2 = .16$$

$$2 \text{ points} - .8 \times .8 = .64$$

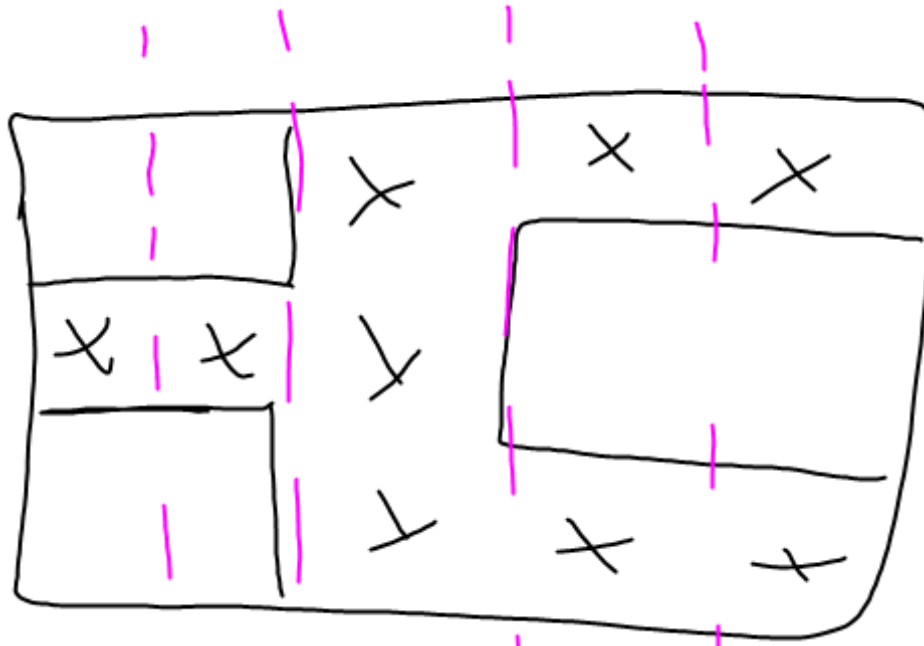
1.00
if it doesn't = 1
go back

3. Josie is going to the amusement park. She cannot decide in which order to ride the 10 roller coasters in the park.

- How many different orders can she ride all of the roller coasters if they ride each once?
- If she has only time to ride 5 of the coasters, how many different ways can she do this?

$$10 \times 9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1$$

#4



Use the diagram below for questions 4-6.

4. Tony and Crystal are sitting around a rug watching darts randomly fall from the ceiling. The rug they are using is pictured below. If the dart lands on the white part of the rug, Crystal wins \$5 from Tony. If it lands on the black part, Tony wins \$3 from Crystal.

5. Do you think this is a fair game? What is Tony's expected value for each turn? What's Crystal's?

6. If you think that the game is not fair to one of the players, change the amount of money they each win in order to make the game fair. (Don't change the rug.)

$$\frac{9}{15} \times \$3 = \frac{27}{15}$$

~~\$4~~ $\frac{36}{15}$ Fair

$$\frac{6}{15} \times \$5 = \frac{30}{15}$$

~~\$6~~ $\frac{36}{15}$

prob \times pts = exp val

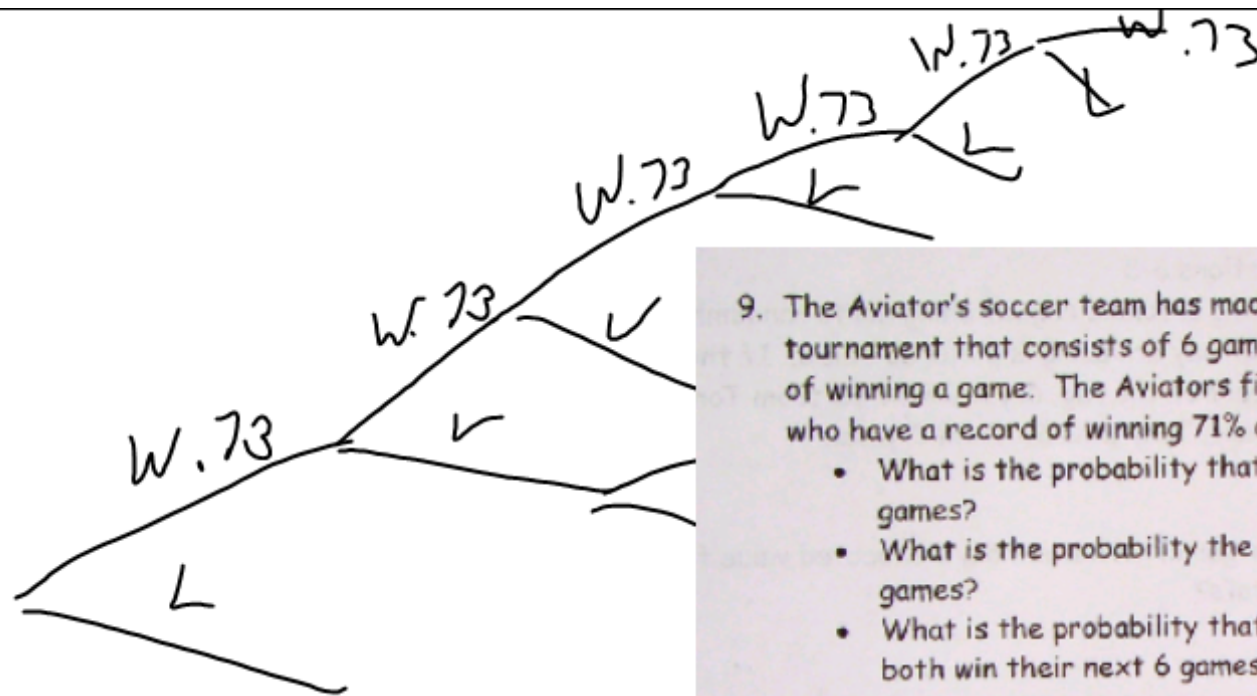
$$\frac{27}{15} \neq \frac{30}{15} \rightarrow \text{Not Fair}$$

#8

30%	20%	50%
100	67	100 + 67
		167

$$\frac{20\%}{67} = \frac{50\%}{x}$$

8. On a rug, there are three different shaded regions. The red region takes up 30%, blue covers 20% and yellow covers the rest. There are a series of darts dropped on the rug and you count that 67 darts land in the blue region, 100 darts land in the red, how many darts fall in the yellow region? How many total darts were dropped?



9. The Aviator's soccer team has made it to the championship tournament that consists of 6 games. So far they have a 73% chance of winning a game. The Aviators final game will be against the Cougars who have a record of winning 71% of their games.

- What is the probability that the Aviators will win their next 6 games?
- What is the probability the Cougars will win their next 6 games?
- What is the probability that the Aviators and the Cougars will both win their next 6 games?

Aviators — $.73 \times .73 \times .73 \times .73 \times .73 \times .73$

Cougars = $.71^6$

Prob of Cougars + Aviators

$.71^6 \cdot .73^6$

A7

7. At Glacier Ice Cream parlor, there are 15 different flavors a night. If your little sister asked you to pick her up a bowl of ice cream with 3 different flavors, but you can't remember which three she asked for, what is the probability you will bring home the bowl of ice cream she asked for?